

ABSTRACT

The invention relates to a process for production of a sintered oxide ceramic of composition  $Ce_xM_yD_zO_{2-a}$  with dense structure without open porosity or with a predetermined porosity. The first doping element M is at least one element of the group consisting of the rare earths but  $M \neq Ce$ , alkali and earth alkali metals. The educts are used with a second doping element D of at least one metal of the group consisting of Cu, Co, Fe, Ni and Mn, in the submicron particle size or as a salt solution, and sintered at a temperature in the range of 750 - 1250°C into an oxide ceramic with extremely fine structure of a grain size of maximum around 0.5  $\mu m$ .

(Fig. 2)